



Master List of GLOBE Protocols

This is a comprehensive list of the measurements your students will take as a part of GLOBE. The protocols are given in each of the investigations.

Atmosphere



Daily

- cloud type
- cloud cover
- rainfall
- solid precipitation
- pH of precipitation
- maximum, minimum, and current temperatures

Hydrology



Weekly

- transparency
- temperature
- dissolved oxygen
- pH
- conductivity for fresh water or salinity for brackish or salt water
- alkalinity
- nitrate

Soil



Daily to Monthly

- soil moisture

Weekly

- soil temperature

Seasonally

- infiltration
- diurnal cycle of soil temperature for two consecutive days

Once at each Soil Characterization Sample Site

- soil profile photograph
- slope
- infiltration
- soil characteristics for each soil horizon
 - depth
 - structure, color, consistence, texture, presence of roots, rocks, and carbonates
 - bulk density
 - pH
 - particle size distribution
 - fertility (nitrate-nitrogen, phosphate, and potassium)

Land Cover /Biology



Once or twice each year for Biology Study Sites

(once during the peak growing season and once during the adverse season if there is one) and

Once for other Quantitative Land Cover Sample Sites

Forests and Woodlands

canopy cover

ground cover

dominant and co-dominant species (when trees are fully leafed out)

tree height

tree circumference

Grasslands

grass biomass

Once only for all Land Cover Sample Sites and Biology Study Sites

MUC Level 4 land cover classification

Photographs from the center of the site looking North, East, South, and West

Once for the GLOBE Study Site

Land cover map using manual interpretation and classification of the hard copy Landsat TM image

Land cover map using unsupervised clustering with MultiSpec software and classification of the clusters

Accuracy assessment of each map using validation Land Cover Sample Site data

GPS



Once for the front entrance of the GLOBE school and for each study or sample site

latitude

longitude

elevation